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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/154,733	11/19/93	CHIOU	W 3344S

EXAMINER
DUNN, D

25M1/0629

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ART UNIT	PAPER NUMBER
2506	9

DATE MAILED: 06/29/94

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☑ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire THREE month(s), ZERO days from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☒ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-30 are pending in the application.
   Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1-30 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____ ; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

A shortened statutory period for response to this action is set to expire three months from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. § 133

The drawings filed 14 March 1994 have been approved.

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

Claims 1-30 are rejected under 35 U.S.C. § 103 as being unpatentable over Gourlay (US 4,435,838) in view of Vali *et al.* (US 5,012,499). Gourlay teaches a method and apparatus for imaging including a coded mask **11** a position sensitive detection array **10** (including semiconductor detection) that take the coded optical input and generates a coded electrical signal to be later decoded by **18** and viewed on display **19**. Also taught is varying the distance of the mask to the object of interest or to the detector array to provide a ratio that can be used as a constant for all selected object planes. Gourlay, however, fails to

specifically teach a separate position sensitive detector to provide a coded optical signal to a CCD array which in turn would generate a code electrical signal to be processed and displayed. Vali *et al.* discloses a gamma ray detecting device using a scintillation crystal in concert with a charge coupled device for imaging (see claim 2). Further disclosed is that gamma ray telescopes have sometimes use coded apertures to extend the observation region to much higher energies (column 1 lines 10+). It would have been an obvious design modification to have the detector **10** be two separate units (scintillator and CCD or possibly semiconductor photodiodes) such that the first to produce a coded optical signal and a second to take said coded optical signal and produce a coded electrical signal, thereto, so as to possibly provide a device with better enhancement and resolution capabilities since each device can be formed by the methods that best suit the needs of the signal to be generated. Also, to prevent loss of optical data (prevent degradation of the optical signal), the use of waveguides, optical fibers or tapers as well as many other optical equivalents would have been obvious to an artisan and is not deemed novel. Further, the choice of the scintillator being a plurality of glass fibers or plastic fibers and using a form of absorber (*i.e.* an external mural absorber) is well within the ordinary skill level in the art as being functional equivalents and obvious variations and the design choice is not deemed novel in the art since no stated problem in the art has been overcome. Lastly, neither reference specifically teaches the choice of the coded mask (aperture) being a uniformly redundant pattern or has a cross-sectional area approximately two times the cross-sectional area of the position sensitive detector to provide for a maximum field of view and said field of view ranging from about 1 degree to about 45 degrees. Notwithstanding, it would have been an obvious design choice

to enlarge, shrink move and manipulate the coded aperture (mask) to provide the best resolution possible since the size and field of view are directly proportional to the imaged area and an artisan would have to adjust the set-up accordingly.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references cited show well known coded apertures used in gamma imaging.

Papers related to this application may be submitted to Group 2500 by facsimile transmission. Papers should be faxed to the Group 2500 Fax Center. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 34-35 (November 15, 1988). The Group 2500 Fax Center numbers are (703) 305-3594 and (703) 308-1753.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Drew A. Dunn whose telephone number is (703) 308-4865.

DAD
DAD
24 June 1994

PAUL M. DZIERZYNSKI
SUPERVISORY PATENT EXAMINER
GROUP 2500